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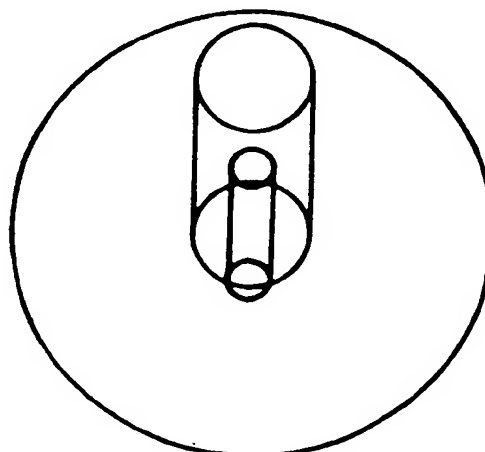
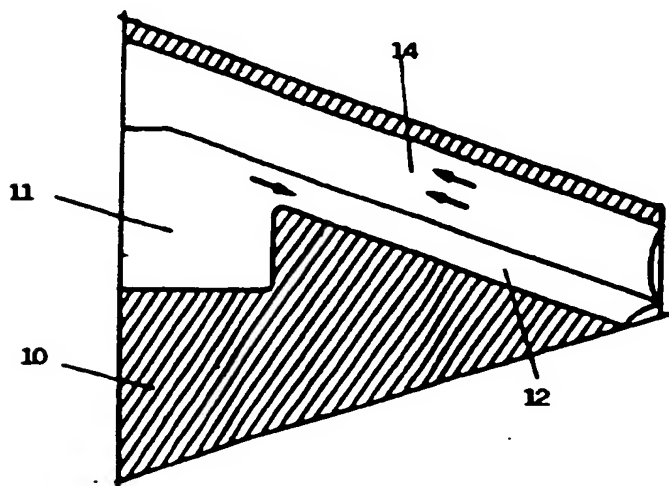
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**I-20122 Milano(IT)**(54) **Device for the lavage, for therapeutic or hygiene purposes, of human and animal internal ducts.**

(57) A device is described suitable for the lavage and/or the administration of drugs to, for instance,

the auricular or uterine ducts and the like, allowing at the same time the drainage of the liquid employed.**FIG. 1****EP 0 502 485 A1**

## INVENTION FIELD

The present invention relates to a device suitable for the introduction of lavage liquids, for hygiene or therapeutic purposes, in internal ducts of the human or animal body, for instance the auricular, vaginal, uterine, anal ducts and at the same time for the drainage of said liquids.

## PRIOR ART

It is known that, in case of particular affections of internal organs, such as the auricular, vaginal, uterine, anal, ducts, etc. medicaments have to be administered in the form of solutions for the irrigation of the duct, and that, also for a common preventive and hygiene praxis, the lavage of said internal parts should be performed regularly.

The instruments normally employed, continuous suppliers such as phleboclysis, syringes or other plunger instruments, rubber syringes, etc. have normally a container in which is contained, or is taken in at the time of use, the liquid to be employed, which is then administered through a suitable duct.

Obviously, with devices of that type it is necessary to repeatedly stop the lavage operations in order to allow the aspiration, or in general the outpouring of the introduced liquid from the duct which is being washed. This is evidently inconvenient for the operator and requires for the patient the presence of specialised personnel in order that the operation be safely performed.

## DETAILED DESCRIPTION OF THE INVENTION

The present invention allows to obviate the mentioned inconveniences by means of a device to be applied to the liquid supplying means, and in which a passage is provided through which the injected liquid may be drained out, thus permitting the performance of the dressing and/or lavage operations in a continuous and safe way.

The invention will now be described with reference to the attached figures 1 + 3, which are shown only for illustrative, non limitative purposes.

Figure 1 represents a section through the device according to the invention.

Figure 2 represents a particular embodiment of the invention.

Figure 3 represents, in section, some of the possible embodiments for the discharge channel.

As shown in figure 1, the device according to the invention consists of a body 10 of essentially conical shape apt to be applied to the human body orifice of the duct through which the lavage operation has to be performed.

According to a particular embodiment of the

invention, in case the device should be employed for auricular lavage, the body 10 may be made to adapt to the shape of the patient's ear, following the techniques commonly employed for taking the auricular prints (as it is done for instance when adapting to the ear devices for improving the hearing). The injection and drainage ducts are then adapted to the device as will be described further below.

Said body 10 comprised a cavity 11 suitably shaped for connection (screwing, pressure, release connections, etc.) of the device to the liquid delivery means. From the cavity 11 a canal 12 goes through the body 10 reaching the external side opposite to the cavity 11.

Preferably the canal 12 is suitably shaped so that the injected liquid is deviated with respect to the central axis of the body 10. This may be obtained either by inclining the canal 12 with respect of the central axis of the body 10 (see fig.1) or bending it (see 13 in fig. 2).

In this way, the injected liquid is projected against the sides of the duct rather than directly against its end surface. This avoids exerting a pressure, which may be damaging, directly on internal organs which may be sensitive, as for instance the tympan membrane. The canal 12 may have any section, but preferably a cylindrical one; it may further be shaped or be provided with suitable deflectors of the liquid jet in order to impart to the liquid in the duct a helicoidal flow, which may mechanically facilitate the removal of matter to be washed out (sebum, mucilages, etc.).

A drainage canal 14 in the body 10 allows to drain out the lavage liquid which may be collected, if preferred, in a suitable container for analysis or other purposes.

Canal 14 may thus be an additional canal, completely independent of injection canal 12, or other similar arrangements may be foreseen.

According to a preferred embodiment, one may, for instance, foresee a single canal longitudinally divided by a separating wall into two sections through one of which flows the entering liquid and through the other the liquid discharged, or two coaxial canals, one for the input liquid and the other for the output liquid.

Fig.3 shows, in section, some possible forms. Others may be easily conceived by the expert.

The ratio between the section of the drainage canal and of the injection canal should be 1:1 or higher in order for the liquid to flow out freely.

According to a particular embodiment of the invention, the drainage canal is suitably shaped, (or comprises in its internal mouth a suitably shaped nozzle), and has multiple holes, to avoid clogging during the operation by the extracted material.

The different elements of the device, according

to the invention, may be made out of any suitable substance.

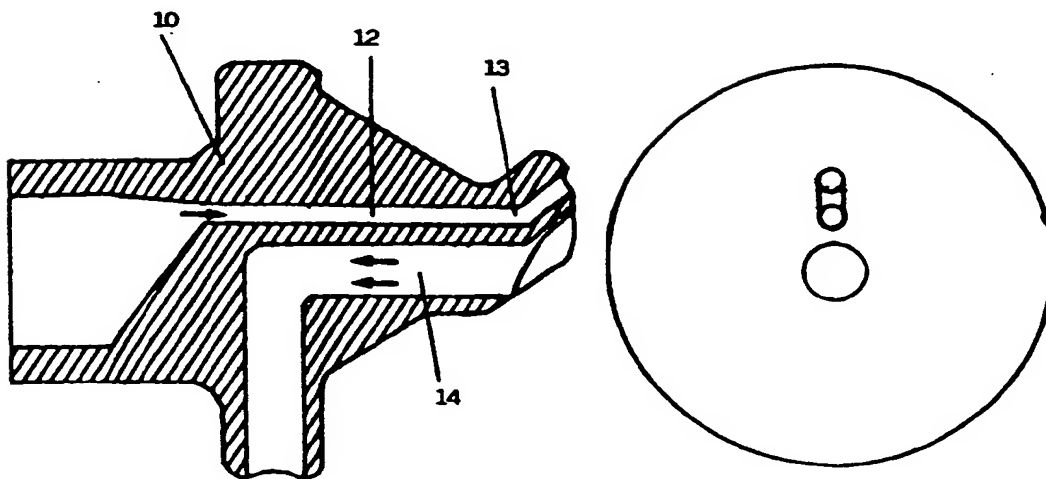
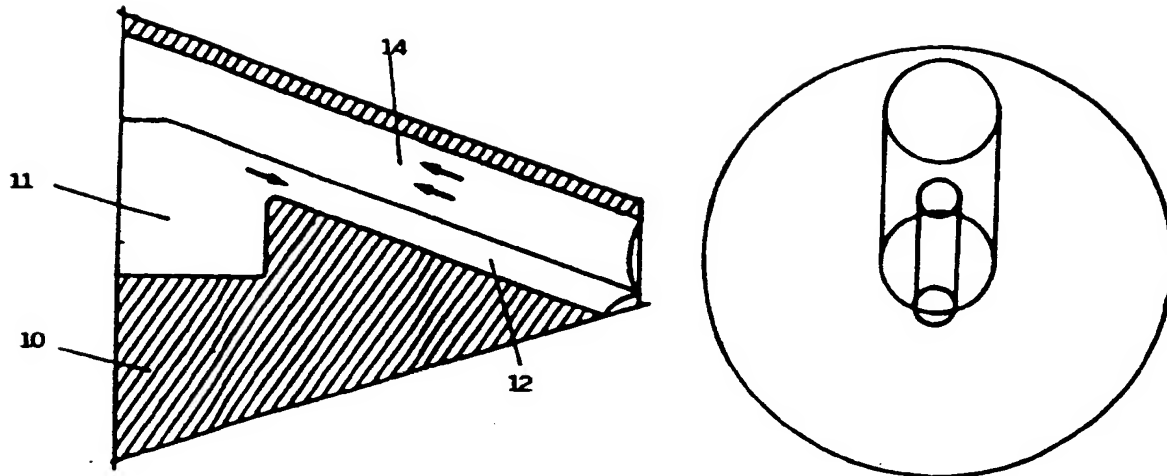
Silicone and/or plastic materials are preferred, which allow a rapid and accurate cleaning and have an elasticity which permits to adapt the device to the body parts interested.

As the device, according to the invention, is of simple use, it may be included in a kit for personal use, consisting of one or more containers for the lavage liquid and of one or more devices, according to the invention, which could be in case thrown away after use.

The device according to the invention may also be connected to a suitable reservoir from which the liquid to be employed may be supplied by conventional means, e.g. plunger instruments or rubber syringes, etc.

### Claims

1. Device for the lavage, for therapeutic or hygiene purposes, of human and animal internal ducts, characterized in that it allows at the same time the drainage of the lavage liquid, said device consisting of a body (10) of substantially conical shape, which comprises connecting means (11) of the body (10) to a reservoir for the distribution of the lavage liquid, a first canal (12) through which the lavage liquid is injected and a second canal (14) for the drainage of the injected liquid. 25
2. Device according to claim 1, characterized in that said two canals (12,14) are coaxial. 35
3. Device according to claim 1, characterized in that only one canal is present, divided by a separating wall into two sections, one (12) for the liquid input, the other (14) for the liquid output. 40
4. Device according to claim 1, characterized in that the ratio of the output canal (14) section to the input canal (12) section is at least 1:1 or higher. 45
5. Device according to claim 1, characterized in that the entrance of the input canal (12) is such as to deviate the liquid jet with respect to the central axis of the device. 50
6. Device according to claim 5, characterized in that the input canal (12) forms an angle with respect to the central axis of the device. 55
7. Device according to claim 5, characterized in that the input canal (12) shows an elbow.
8. Device according to claim 5, characterized in that the input canal (12) is shaped as to impress to the injected liquid a helicoidal movement.
9. Device according to claim 1, characterized in that the output canal (14) has at its mouth a nozzle with a plurality of holes.
10. Device according to claim 1, characterized in that said conical body (10) is suitably shaped as to adapt to the particular conformation of the patient auricle.
11. Device according to claim 1, characterized in that said conical body (10) consists of plastic and/or silicone materials.
12. Device according to claim 1, characterized in that said body (10) is firmly attached to said reservoir.
13. Use of the device according to claims 1-12 for the lavage of human and animal internal ducts.



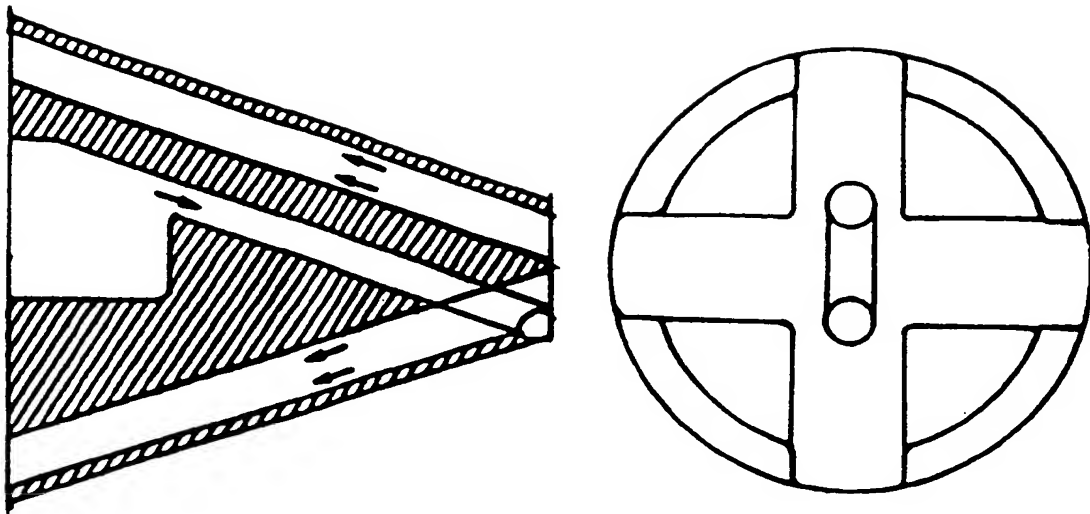


FIG. 3



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## EUROPEAN SEARCH REPORT

Application Number

EP 92 10 3639

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X	EP-A-0 313 684 (GENECO)  * page 9, line 39 - line 58 * * page 10, line 35 - line 42; figures 1,2,4 * ---	1,3-5, 9-13	A61M3/02
X	US-A-1 503 579 (WALTER)  * page 1, line 30 - line 84; figures 1,2 * ---	1,3,5,6, 9-13	
X	GB-A-6 842 (SPECK)  * page 1, line 35 - page 2, line 24; figures 1,3 * * ---	1,2,4-6, 9,10,12, 13	
X	US-A-2 888 925 (PHILIPS)  * column 2, line 8 - column 3, line 24; figure 2 * * -----	1,2,5,9, 10,12,13	
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			A61M
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 27 MAY 1992	Examiner KOUSOURETAS I.
<b>CATEGORY OF CITED DOCUMENTS</b>  X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document  T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ----- * : member of the same patent family, corresponding document			

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